DOCUMENT RESUME

ED 035 429 LI 001 833

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TITLE	The Use of Hospital Health Science Libraries; A Methodological Study.
INSTITUTION	Wayne State Univ., Detroit, Mich. Library and Biomedical Information Center.
SPONS AGENCY	National Library of Medicine, Bethesda, Md.
REPORT NO	Report No. 52
PUB DATE	Oct 69
NOTE	26p.
EDRS PRICE	EDRS Price MF-$0.25 HC-$1.40
DESCRIPTORS	*Data Analysis, Evaluation, Hospitals, Library Facilities, *Library Research, *Medical Libraries, *Research Methodology, *Use Studies

ABSTRACT

The purpose of this study was to develop and evaluate a method to provide facts about the clientele and use of one type of health science library, the hospital medical library. The method was tested in two hospital libraries, Harper Hospital, Detroit, and Hurley Hospital, Flint. The study was divided into four levels of data collecting and evaluation: (1) a census of all library patrons by category, (2) a division of the libraries into functional units based on areas of service, (3) a survey of use of library facilities which involved the observation of library users, and (4) a summation and evaluation of the data from the census and patron use surveys. It was concluded that this study demonstrates that the functions of the hospital medical library can be an object of study; and this method yields information about a hospital library in varying degrees of detail depending on which steps are carried out and the depth of the data analysis. It was also found that while the steps should be carried out in sequence, useful data are produced when only the first or second step is completed. (Author/JB)

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LI 001833

REPORT

No. 52

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The Use of Hospital Health Sciences Libraries, a Methodological Study

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SCHOOL OF MEDICINE
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Information Service Center
Detroit, Michigan

LI 001833

ED035429

The Use of Hospital Health Science Libraries, a Methodological Study*

by

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and
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* Supported in part by USPHS Grant LM 00111-03

Detroit
October 1969

INTRODUCTION

The role of the health sciences library in continuing education for the health professions has been discussed in a number of recent articles, (1, 2, 6,). Demand for the control and dissemination of the vast quantities of new information in the health science field has placed a tremendous burden on existing health science libraries. The Medical Library Assistance Act of 1965 demonstrates the concern of the Federal Government with health science library problems in that authorization of the use of funds for the improvement of libraries has been made. Among the several programs is that of renovating and the building of new facilities. Further development of the hospital health science library requires that information about its functions, uses, and its clientele be available so that decisions concerning a new building or improvements in present facilities can be based on facts rather than intuition (Walkington). (7)

The purpose of this study was to develop and evaluate a method to provide facts about the clientele and use of one type of health science library, the hospital medical library. This method was suggested by and adapted from the method described by Pings and Anderson. (5) The method was tested in two hospital libraries, Harper Hospital, Detroit, and Hurley Hospital, Flint.

METHOD

For the sake of description the study can be divided into four units or steps which can also be identified as "levels" of data collecting and evaluation.

I. Census of library patrons

The first unit involved a census of all persons entering the library for any purpose. The census revealed the library population or clientele and was carried out as follows:

1) The library users were defined by category. The type of personnel permitted to use the library were listed and then grouped by major category and subcategory.

2) A data sheet was prepared, providing a space for each subcategory and a summary area for each major category, with an hourly breakdown. A separate data sheet was used each day.

3) The census was taken by the library staff. For this study the census was maintained for two weeks in both libraries.

II. Division of the library into units

The second step in the development of this study was to divide the libraries into functional units based on areas of service. Each library has its own organization of service areas so the two libraries are described separately (infra). However, the activities of both libraries by users can

be identified as taking place in twelve separate areas and are named by the activity taking place or by its contents.

1) Circulation activities. These included all the activities involving the routines of taking items from the library, checking out, renewing, requesting specific material, etc.

2) Index and abstract area.

3) Current journal display. In both libraries current journals were gathered for display and could not circulate.

4) Reference collection. The materials which were restricted to the library and stored in one location.

5) Book collection. The stack area containing the classified items that could be circulated.

6) Card catalog area.

7) Journal title locator. Both libraries maintained a special locator device for their journal collection.

8) Stacks - Journal collection. These stack sections were identified separately from the book collections.

9) Librarian's services. This category included requests for help in use of the library, reference questions, and miscellaneous services other than the general collection activities.

10) House telephone. Both libraries had a telephone for the use of their patrons.

11) Reading room. Anyone not in a specified area as described above was identified as being in the reading room.

12) Miscellaneous. In some instances individuals came to the library and engaged in activity in which they acted as intermediaries for other library users.

III. Survey of use by library patrons

This third step in the method involved the observation of library users from the moment they entered the library until they left. It demonstrated the way patrons used the library facilities.

1) A data collection form was prepared based on the results of Step I. Since every library has a different physical arrangement with individual variations in the activities performed in each service area, a separate data collection form must be prepared for each library surveyed.

2) The data collection form was used to collect data on library patrons: as they entered, they were (i) first identified as to occupational category, (ii) the time noted, (iii) their movements from one service area to another observed with note of the time at each movement, and (iv) the time they left the library was recorded. The survey was conducted over a period of one week, with data collected at varying hours of the day. There was no conscious selection of the category of patrons chosen to be included in the survey. It was possible to observe several patrons at one time. The optimal number at any one time varied depending on the size of the library being surveyed and on the activities of the patrons being observed, but three to six patrons could be handled conveniently.

3) Approximately 120 patrons were observed in each library, but this was simply a convenient number. It would be possible to cover many more patrons over the same observation period.

IV. Evaluation of data

The final step in this method is the summation and evaluation of the data from the census and patron use survey.

DATA COLLECTION

Description of test libraries

This study was conducted in two hospital libraries, at Harper Hospital in Detroit and Hurley Hospital in Flint. Both are general, short-term hospitals with close to 700 beds and provide similar services for patients. These facilities and services are summarized in Table 1.

Although the hospitals are similar, their libraries are very different in historical development, physical facilities, and services provided. Harper Hospital was founded in 1863 and a physician's library began to develop as early as 1900. The present integrated library opened in 1950. The present staff quota calls for two professional librarians and three full-time clerks. The library circulated 39,000 publications of all types in 1965. Over 700 current medical publication subscriptions are maintained, with a book stock of 7,000 and approximately 9,000 bound journals. The library is comfortably furnished, carpeted, and air-conditioned.

Hurley Hospital was founded in 1908, and a professional library of sorts has existed for a number of years, however a professional librarian was hired for the first time at Hurley in September, 1968. A full-time clerk-typist was hired in November of that year. Part-time professional help is available occasionally. At the time of the study the book collection consisted of approximately 1500 volumes. Bound journals for the

Table 1

Comparison of Two Survey Hospitals*

Harper Hospital		Hurley Hospital
1863 private-nonprofit	Date Founded	1908 city-owned
	Size	
679	Number of beds	716
19,349	Admissions	23,318
563	Census[1]	632
82.6%	Occupancy ratio	88.3%
	Finances	
$16,705,000	Expenses	$15,269,000
10,579,000	Salaries	9,753,000
	Personnel	
1,803		1,787

Departmental Services Offered Both Hospitals

Pathology lab.

Dental facilities — Premature nursery

Intensive care unit
Outpatient dept.
Emergency dept.
Postop. recovery room
Hospital auxiliary
Volunteer services dept.
Inhalation therapy

Home care program — Renal dialysis
Closed-circuit TV

Training Programs

Accredited hospitals
Approved cancer program
Approved residency - AMA
Approved internship - AMA

AMA Med School Affil.

Professional nursing school
Blue Cross participant
Certified Medicare participant

* Figures are for year 1968

[1] Census - average number of patients over 12 months

past 25 years are being kept. About 300 current journal subscriptions are maintained; no circulation figures are available.

Census of library patrons

The census data form used in this survey was prepared by the professional staff at Harper Hospital. The library user* classes were thus designed for that library but proved to be adaptable and were subsequently used for the census at Hurley Hospital. The user classes were defined as follows:

ADMINISTRATIVE: This category included all administrators of the hospital and was not subdivided for the survey.

CLERICAL: This group included secretarial staff and aides and assistants of varying, non-technical levels.

PHYSICIANS: This category was further divided into:

(i) Attending staff. Private physicians with staff privileges at the hospital.

(ii) Full-time staff. Staff physicians employed by the hospitals such as pathologists and radiologists.

(iii) Residents and interns. Research fellows were categorized as residents.

(iv) Medical students. No differentiation was made between "affiliated" and "studying" students for the data evaluation.

NURSING: This category was also sub-divided.

(i) Staff. Registered nurses on the hospital staff; private duty nurses were also included here.

(ii) Instructors. Nursing school instructors.

(iii) P. N.'s. Practical nurses on the hospital staff.

(iv) Students. For data evaluation, only the differentiation between nursing school students and practical nursing students was made.

(v) Other. Visiting nurses, nurse aides, etc.

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* The library staff obviously also use the library facilities, but are not included in any of the census or other data collecting.

PARAMEDICAL: This user group represents a diverse number of individuals providing a wide variety of services in the hospital.

(i) Technologists.

(ii) Inhalation therapists.

(iii) Chaplain. (And student chaplains.)

(iv) Social service professionals.

(v) Dietitians. (And dietitian interns.)

(vi) Pharmacists.

(vii) Volunteers. (Does not include the volunteer who helped out in the library at Harper.)

(ix) Other students. (Medical technologists, occupational therapists.)

PATIENTS AND FAMILIES: This category was not considered in the survey except in census totals at Harper Hospital.

SUPPORTIVE: This group included maintenance personnel, messengers, porters, and maids.

MISCELLANEOUS: This served as a catch-all for individuals who did not fit into one of the above categories.

The census of library users was taken at Harper Hospital several weeks before the user survey. The Hurley census was taken the week preceding the survey and concurrently with it. Census data for an eight hour period are summarized in Table 2, giving the average number of patrons each day of the week. A count of the number of individuals in the library was collected at hourly period. The counts are given in Table 3 and illustrated graphically in Figure 1.

Service area locations. As discussed above the location of activities and services in both hospitals were identified. In addition, the following locations at Harper Hospital had activities which were not found at Hurley Hospital.

Patient library - separate room
Recreational reading
Farrand room - separate room
Audio-visual materials, cataloging
Duplicator - in stacks, used by all hospital personnel and librarians
Study carrels - 4 individual study areas for physicians only

Table 2

Two Week Census Summary - By Major User Class

HARPER HOSPITAL

User Group	Number of users - average of 2 sample days						
	Mon.	Tues.	Wed.	Thurs.	Fri.	Total	Average
Administrative	1.5	3.0	2.5	3.0	2.5	12.5	2.5
Clerical	15.0	8.0	14.0	4.0	7.5	48.5	9.7
Physicians	66.5	68.0	108.0	59.0	66.0	367.5	73.5
Nursing	69.5	51.0	60.0	37.5	38.0	256.0	51.2
Paramedical	17.0	21.0	21.5	23.0	15.5	98.0	19.6
Patients-Family	1.5	2.5	6.5	3.0	--	13.5	2.7
Supportive	8.0	7.5	8.0	3.0	5.5	32.0	6.4
Miscellaneous	2.0	4.0	3.0	6.0	2.5	17.5	3.5
Total-Ave.day	181.0	165.0	223.5	138.5	137.5	845.5	169.1

HURLEY HOSPITAL

User Group	Number of users - average of 2 sample days						
	Mon.	Tues.	Wed.	Thurs.	Fri.	Total	Average
Administrative	--	1.5	--	--	.5	2.0	.4
Clerical	2.0	1.5	4.5	4.0	2.0	14.0	2.8
Physicians	39.5	39.5	34.5	33.5	40.0	187.0	37.4
Nursing	28.0	12.0	19.0	10.5	6.0	75.5	15.1
Paramedical	12.5	12.0	14.5	9.5	10.0	58.5	11.7
Supportive	3.0	2.5	1.5	2.5	2.0	11.5	2.3
Miscellaneous	.5	1.5	.5	--	--	2.5	.5
Total-Ave.day	85.5	70.5	74.5	60.0	60.5	351.0	70.2

Table 3

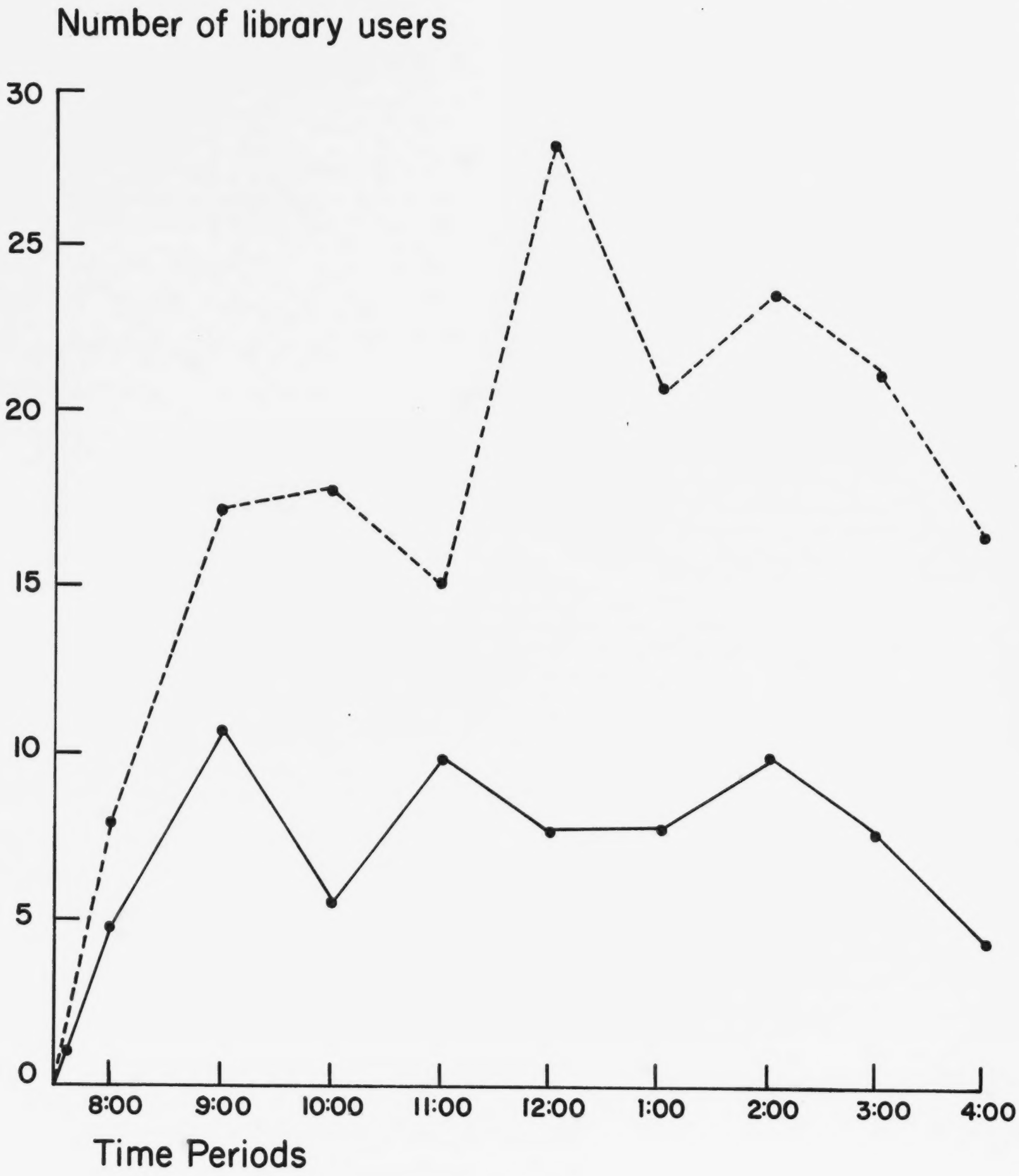
Average Number of Library Users in the Library During a Two Week Period

HARPER HOSPITAL

Day of Week	Number of Users - Average of 2 Sample Days								
	8:00	9:00	10:00	11:00	Noon	1:00	2:00	3:00	4:00
Monday	12.5	14.5	18.0	16.0	36.0	20.5	18.5	31.5	13.5
Tuesday	8.5	13.5	16.0	15.0	24.5	13.5	24.0	29.5	20.5
Wednesday	10.0	23.5	22.0	15.5	44.5	36.5	42.5	14.5	14.5
Thursday	5.0	23.5	15.0	20.0	17.5	13.0	12.5	13.0	19.0
Friday	3.0	11.5	19.5	9.0	20.0	22.0	23.0	20.0	15.0
Totals Weekly	39.0	86.5	90.5	75.5	142.5	105.5	120.5	108.5	82.5
Daily	7.8	17.3	18.1	15.1	28.5	21.1	24.1	21.7	16.5

HURLEY HOSPITAL

Day of Week	Number of Users - Average of 2 Sample Days								
	8:00	9:00	10:00	11:00	Noon	1:00	2:00	3:00	4:00
Monday	2.5	11.5	9.0	12.0	10.0	10.5	13.0	11.5	5.5
Tuesday	5.0	11.0	8.0	9.0	4.5	7.0	9.0	8.5	8.0
Wednesday	9.0	7.5	9.5	6.5	11.0	7.0	13.0	9.0	2.5
Thursday	5.0	13.0	4.0	10.0	5.5	6.0	5.5	5.0	6.0
Friday	2.5	10.5	7.0	12.0	7.0	8.0	9.5	4.5	1.0
Totals Weekly	24.0	53.5	37.5	49.5	38.0	38.5	50.0	38.5	23.0
Daily	4.8	10.7	5.5	9.9	7.6	7.7	10.0	7.7	4.6


Number of library users
30
25
20
15
10
5
0
8:00
9:00
10:00
11:00
12:00
1:00
2:00
3:00
4:00
Time Periods
CODE:
----- Harper Hospital
—— Hurley Hospital

Survey of use by library patrons

The third step in this study method was the survey of the use of the library by the various groups of library patrons. Since most hospital personnel wear identifying insignia or name tags, in most cases it was possible to make observations without having to ask them their identity. When it was necessary to ask, the query was usually made as the patron left the library. The survey was taken at Harper Hospital over a two-week period, with a total of five observation days, one each day of the week. The survey at Hurley was taken during one week, Monday through Friday. Samples were taken at various times during the day, covering 9:00 a.m. to 4:30 p.m. The patrons selected for observation were done so for the convenience of the surveyor. Three to six patrons were observed at one time, with 120 observed in each library. An arbitrary number of 100 observations was used for evaluation.

The number of library patrons observed in each major user category is given in Table 4. The totals are given in four groups of 25, with sub-totals for each group of 50. Subject samples were taken in order; the first 100 accurate samples were evaluated. No statistical analysis of the sample of either the census or the patron observations was undertaken. However, comparing the sample of 50 shows essentially the same array of users as 100 which compares favorably with the two week census figures. (Table 5) Assuming, then, that other hospital environments are much the same as the two tested in this study, essentially the same data could be collected with a sample of 50 using the convenient approach utilized in this study as would be acquired through a comprehensive two week total observation.

The survey material was analyzed for the number of locations or service areas visited by each sample subject. A summary of this data is given in Table 6, again in groups of 25, with sub-totals of 50. The amount of time spent in the library by each survey subject is summarized in Table 7, with figures given in groups of 50 samples. Again, simple inspection shows that a sample of 50 would not produce misleading information.

The observations of the 100 individuals for each hospital were tabulated according to the first location or service area visited by the patron as he entered the library. This information is summarized in Table 8. It is arranged according to the services supplied at each location, with locations providing the same service combined into one unit. The data includes a breakdown by major user category.

It is possible to analyze the survey samples for further locations visited, including the frequency and order of "visits". This analysis was carried out enough to show that no significant pattern in the use of these libraries resulted. The analysis and sequence of locations was an important procedure in the method used by Anderson and Pings in their study of an academic library. Why this approach did not show significance in this study of medical libraries is unknown: perhaps the sample size was not sufficient to reveal a pattern or perhaps the difference was due to the difference in the functions of hospital and academic libraries.

Table 4

Number of Library Patrons Observed in Each Major User Class

HARPER HOSPITAL

User Class	Nos. 1-25	Nos. 26-50	1st 50	Nos. 51-75	Nos. 76-100	2nd 50	Total 100
Administrative	--	1	1	1	--	1	2
Clerical	2	3	5	2	2	4	9
Physicians	13	9	22	10	14	24	46
Nursing	6	6	12	6	8	14	26
Paramedical	2	3	5	4	1	5	10
Supportive	2	2	4	1	--	1	5
Miscellaneous	--	1	1	1	--	1	2

HURLEY HOSPITAL

User Class	Nos. 1-25	Nos. 26-50	1st 50	Nos. 51-75	Nos. 76-100	2nd 50	Total 100
Administrative	--	--	--	--	--	--	--
Clerical	1	1	2	--	1	1	3
Physicians	11	16	27	10	15	25	52
Nursing	9	2	11	10	5	15	26
Paramedical	4	4	8	4	2	6	14
Supportive	--	2	2	1	2	3	5
Miscellaneous	--	--	--	--	--	--	--

Table 5

Comparison of Census Data with Patron Observations

	HARPER		HURLEY	
User Category	% of Census	% of Observations	% of Census	% of Observations
Administrative	1.5	2	0.6	0
Clerical	5.7	9	4.0	3
Physicians	43.5	46	54.0	52
Nursing	30.0	26	20.1	26
Paramedical	11.6	10	16.6	14
Supportive	3.8	5	3.4	5
Miscellaneous	3.7	2	0.7	0
Total	99.7	100	99.4	100

Table 6

Number of Locations Visited by Sample Numbers

HARPER HOSPITAL

Number of Locations	Nos. 1-25	Nos. 26-50	1st 50	Nos. 51-75	Nos. 76-100	2d 50	Total 100
1	13	13	25	12	8	20	45
2	2	5	7	5	2	7	14
3	--	4	4	1	2	3	7
4	3	1	4	1	5	6	10
5	2	2	4	4	2	6	10
6	1	1	2	--	2	2	4
7	--	1	1	--	--	--	1
8	2	--	2	--	--	--	2
9	--	--	--	--	1	1	1
10	--	--	--	--	--	--	--
11 - 15	2	--	2	--	1	1	3
16 - 20	--	--	--	1	1	2	2
over 20	--	--	--	--	1	1	1

HURLEY HOSPITAL

Number of Locations	Nos. 1-25	Nos. 26-50	1st 50	Nos. 51-75	Nos. 76-100	2d 50	Total 100
1	11	15	25	18	15	33	58
2	3	5	8	3	5	8	16
3	3	3	6	2	4	6	12
4	3	--	3	1	1	2	5
5	1	1	2	--	--	--	2
6	1	1	2	--	--	--	2
7	--	--	--	--	--	--	--
8	--	1	1	--	--	--	1
9	--	--	--	--	--	--	--
10	--	--	--	1	--	1	1
11 - 15	3	--	3	--	--	--	3
16 - 20	--	--	--	--	--	--	--
over 20	--	--	--	--	--	--	--

Table 7

Number of Minutes Spent in Library by Patron Samples

Number of Minutes	HARPER			HURLEY		
	Nos. 1-50	Nos. 51-100	Total 100	Nos. 1-50	Nos. 51-100	Total 100
1	4	5	9	10	12	22
2	4	4	8	5	2	7
3	3	4	7	4	4	8
4	3	3	6	2	1	3
5	3	1	4	3	5	8
6	-	1	1	-	3	3
7	-	-	-	-	2	2
8	2	1	3	2	-	2
9	-	-	-	1	1	2
10	-	-	-	-	3	3
11	-	2	2	1	-	1
12	-	2	2	1	-	1
13	2	1	3	1	-	1
14	-	2	2	1	-	1
15	2	2	4	-	-	-
16 - 20	3	5	8	6	2	8
21 - 25	1	2	3	2	2	4
26 - 30	2	3	5	-	1	1
31 - 40	6	3	9	5	6	11
41 - 50	2	2	4	-	6	6
51 - 60	3	2	5	2	-	2
61 - 70	1	1	2	2	-	2
71 - 80	-	1	1	2	-	2
81 - 100	3	2	5	-	-	-
over 100	6	1	7	-	-	-

Table 8

First Location Visited by Each Category of User

HARPER HOSPITAL

Location	Total	Admin.	Cler.	Physicians	Nurses	Paramed.	Suppor.	Misc.
Reading Room & Study Carrel	19			13	5			1
Current Jl. & Patient Lib.	17	1	1	13	1	1		
Duplicator	13		4	3	1	5		
Office	12	1	2	3	1	1	3	1
Circulation	9		1	1	5		1	1
Book Collection	7			1	4	2		
Reference	6		1	3	1	1		
Farrand Room	5			1	4			
Phone	4			4				
Stacks-Journ.	3			2	1			
Indexes-Abstr.	3			1	2			
Card Catalog	2			1	1			

HURLEY HOSPITAL Total

Location	Total	Admin.	Cler.	Physicians	Nurses	Paramed.	Suppor.	Misc.
Reading Room	29		1	8	10	10		
Current Journals	22			19	1	2		
Clerk's desk	14			2	8		4	
Librarian	10		2	3	2	2	1	
Book Collection	8			5	3			
References	6			6				
Phone	6			6				
Stacks-Journ.	3			2	1			
Card Catalog	1				1			
Miscellaneous	1			1				

Much of the same information can be determined in a less exact but still useful way by following two simple steps. First, separate the data collection forms according to the major categories of patron users. Then examine each data form for the library activities of that patron. By asking,"Why did this person come into the library?" and looking at the movement pattern of this library patron, a decision can be made concerning that patron's use of the library.

In approximately one hour the 200 samples from this survey were divided in this way and organized into several general use patterns. Patrons came to these hospital libraries for the following reasons:

1. To conduct library business such as circulation activities, deliveries, or to consult the librarian.

2. To look up information, using the reference sources, books, and journals including current journals.

3. To study or read, including leisure reading.

4. To use the phone facilities.

5. To use the duplicator. (This applies only to Harper)

The patterns of library use determined in this way are given in Table 9.

This method of analyzing the use of the library can also be carried further. For example, the use pattern of the physician's category is divided into subcategories in Table 10. This tabulation also gives the amount of time physicians spent in the library and the number of locations visited under each use pattern.

Any further steps in analyzing this data would depend on the type of information sought from the study. If the time element were the prime concern, each use pattern could be analyzed for which users spent what amount of time on that activity. Similarly, each use pattern could be analyzed from which user subcategory visited how many locations, which ones, and in what order. This would result in information similar to that in Table 8, but could be done selectively, using only those activities and user categories which show enough movement to make this detailed approach worthwhile.

DISCUSSION

The primary purpose of academic libraries is to provide services to support education and research. Public libraries also deal directly or indirectly with education. However, the hospital as an institution has the primary responsibility to provide health care. Although some hospitals have programs leading to academic degrees or diplomas, the hospital health science library has the immediate and ever present task to be so organized

Table 9

Distribution of Patron Categories
According to Five Library Use Patterns

User category	HARPER HOSPITAL	Use Pattern	HURLEY HOSPITAL
Administrative	1	Library Business	
	1	Read - Study	
Clerical	2	Library Business	2
	2	Read - Study	1
	5	Duplicator	
Doctors	5	Library Business	4
	25	Information	37
	13	Read - Study	7
	3	Duplicator	
		Phone	4
Nursing	5	Library Business	9
	15	Information	11
	5	Read - Study	6
	1	Duplicator	
Paramedical	1	Library Business	2
	3	Information	3
	1	Read - Study	9
	5	Duplicator	
Supportive	5	Library Business	5
Miscellaneous	2	Library Business	

Table 10

Distribution of Physician-users According
To Three Use Patterns by Time and
Number of Locations Visited

	Use Patterns					
	Library Business		Information		Read - Study	
Physician Category	HARPER	HURLEY	HARPER	HURLEY	HARPER	HURLEY
Attending & Staff	4	3	7	7	3	1
Residents & Interns	1	1	17	28	5	6
Medical Students	-	-	1	2	5	-
Amount of time spent in library						
1 - 5 min.	5	4	1	15	-	2
5 - 10 min.	-	-	-	8	1	-
11 - 15 min.	-	-	2	1	2	2
16 - 20 min.	-	-	3	3	2	-
21 - 30 min.	-	-	5	2	-	-
31 - 40 min.	-	-	2	4	1	1
41 - 50 min.	-	-	2	1	1	2
51 - 60 min.	-	-	2	2	1	-
over 60 min.	-	-	8	1	5	-
Number of locations visited						
1	2	4	2	12	12	5
2	3	-	2	10	-	-
3	-	-	4	8	-	2
4	-	-	4	2	-	-
5	-	-	4	1	1	-
6 - 10	-	-	4	3	-	-
11 - 15	-	-	3	1	-	-
16 - 20	-	-	1	-	-	-
over 20	-	-	1	-	-	-

to provide information that can be used to solve individual health problems. This information service may also incidently at the time be an educational service. The hospital health science library must be involved with the continuing education of its clientele in a way few other libraries have the opportunity to function.

The hospital library has a unique role among libraries, and any study of the use of this type of library must take this into consideration. How the library is used and for what purposes depends to a great extent on who is using the library and their status among the many categories of hospital personnel. An approach to studying hospital health science libraries is to consider first the category of personnel, and second the reason such personnel use the library.

Under this condition the first step to study the library would be to conduct a census. This requires a definition of categories of personnel who use the library, in itself a useful tool. Census data from the two libraries studied illustrates the number of daily library patrons, how many of each type of personnel used the library and when, at what hours they came in. This type of data is a useful measurement of how much the library is used and by what level of hospital personnel. It is also useful in scheduling staff time, especially in insuring that professional staff will be available during peak hours. Both libraries show a mid-morning peak, a second peak just before or during the noon hour, and a third peak in mid-afternoon. Librarians often "know" this information from their daily work loads, but only a controlled census provides quantitative data. Without quantitative data, administrators are reluctant to make decisions in allocating staff or space. Since this part of the study is simple to do once the clientele categories are defined, it would appear to be able to produce planning and management data for little cost. A reasonably good census can be done as a part of other library duties and need not be done by the professional staff even though it does require a careful watch on the door and a certain amount of concentration.

The second approach in studying hospital libraries used in this study involves discovering the reasons why various personnel use the library and how they use it. The observational method applied here provides a wealth of information as well as raw data. Before making the observations of library use, the library service area must be defined and described. This is a useful procedure in itself since it analyzes and locates the various services provided in the library. Again, the librarian may "know" this information, but administrators and library planners are often not familiar with the library functions and can comprehend them only in some graphic form. In fact, the librarian himself may discover bad flow patterns and thus devise ways to improve the library arrangement through describing and relating various activities without further work. How detailed the description should be will, of course, depend on the objectives of those conducting the study.

The description of library service areas is used for the survey sample forms. The survey itself is a simple procedure, especially if the person taking the survey knows or can quickly identify personnel entering the library. There are several ways to select the individuals to observe. In a small library all patrons could be observed. For this study, samples were selected at the convenience of the surveyor; that is, as one individual left the next person entering was observed. However, if desired, only certain categories of personnel could be chosen, resulting in a larger sampling of that category over the same period of time.

This study was conducted to test the use of hospital libraries by those who come into the library from other departments in the hospital. It would be possible to use the same basic method to study use of the library facility by library staff members and those personnel who provide housekeeping and maintenance services.

The final step in this method is the evaluation of data. This study demonstrated that the way hospital personnel use the library depends to a great extent on their role in the hospital, the part they play in providing patient care. Thus the logical approach to data evaluation is to consider the personnel categories first.

The division of each such category into user patterns (see Table 9) shows at a glance that certain categories only visit the library for one or perhaps two reasons. It also shows, for example, that only professional personnel, physicians, nurses, and a few paramedics, use the library's information resources. If the librarian's concern is with rearranging the information facilities, these user patterns can be further analyzed to determine who goes where first and in what order the facilities are most often used and how often the facilities are used. One step further would answer "Is there a difference in the use patterns of practicing physicians, interns and residents, or of nursing students and medical students?" Just how detailed this type of analysis should be would depend on the clientele of the library and the importance of satisfying the needs of this portion of that clientele.

The survey data when arranged by personnel category and then user pattern (Table 10) can also be used to answer quite specific questions such as "How many physicians spent more than ten minutes in the library?" Arranging the census data by category of user and by hour, a quick glance at data tabulated could answer "Did more attending physicians use the library before 10:00 a.m. than between 10:00 a.m. and noon?" (See Table 11)

How detailed the analysis of survey data should be depends primarily on the type of information sought and the amount of time available for such analysis. The amount of detail desired determines to a great extent the amount of time required to conduct this study. If the census were limited to one week (the Hurley library figures showed little variance between the two week summaries) the complete census and survey could probably be conducted in one week's time, after one-half day's wait to establish the hospital user categories and to define the service areas.

Table 11

Average Number of Physicians in Harper Hospital Library at Different Hours of the Day During a Two Week Period

	8:00	9:00	10:00	11:00	12:00	1:00	2:00	3:00	4:00
Attending & Staff	0.7	2.8	3.4	1.8	1.9	1.4	1.5	0.4	0
Interns & Residents	1.7	4.2	4.11	2.6	6.6	6.2	5.8	4.0	2.6
Medical Students	0.6	1.4	1.9	2.6	2.9	2.9	2.5	3.5	4.9
Totals	3.0	8.2	9.4	7.0	11.4	10.5	9.8	7.9	7.5

Although the two hospitals used in this study are quite similar, their libraries vary a great deal. The census revealed the variance of numbers with an average of 70 patrons daily at the Hurley library and 169 at the larger and better equipped Harper library. The census time summary shows a similar morning and afternoon pattern in the two libraries but a much larger noontime load at Harper than at Hurley. However, the proportions of users in each user category are quite similar at both libraries.

There were more locations to visit in the larger Harper library and this is reflected to some degree by the location summary in Table 6. At Harper 59% visited two locations or less, with 86% visiting 5 or less. At the Hurley library 74% visited one or two locations, with 93% visiting 5 locations or less. A more pertinent comparison is given in Table 10 where the number of locations visited by physicians in search of information at Harper was 16% for one or two locations and at Hurley was almost 60%. Five locations or less were visited by 64% at Harper and 89% at Hurley. In contrast, physicians who came to transact library business visited one or at the most two locations: This was true for both libraries.

The amount of time spent in the library also reflects the difference in facilities available. From Table 7, 38% spent 10 minutes or less in the Harper library, while 60% spent that amount of time in the library at Hurley. Again, the physician use patterns in Table 10 show that the amount of time spent in either library for business purposes was similar but the information pattern varies a great deal. Only 4% spent 10 minutes or less looking for information at Harper, while in the Hurley library 64% spent that amount of time on information searches.

While this method demonstrates the difference in the library facilities through the time element, it doesn't determine the significance of this fact. It does raise the question, "Is time an important element? Does this

library want patrons to stay in the library for a longer period of time?" The answers to these questions could influence how much library space is planned for reading and studying facilities. These illustrations show that the differences in the use of the Harper and Hurley hospital libraries are revealed through the data from this type of study. In addition, similarities in use patterns are also described. The original analysis of all survey samples was useful for general data, but by defining the library use patterns first and then analyzing the patterns in greater detail the results yield more significant comparisons.

CONCLUSION AND SUMMARY

This method to study the use of hospital health science libraries yields information about a library in varying degrees of detail depending on which steps are carried out and how much time is spent analyzing the data. Each step of the method yields certain types of data which can be studied for general information or analyzed in depth. While the steps should be carried out in sequence, useful data are produced when only the first or second step is completed.

1. The census alone reveals the daily number of patrons and the times of heaviest use. By tabulating the census by personnel category and subcategory it yields more detailed information on who is using the library and when.

2. The survey of library users requires as a first step a written description of library service areas; a useful exercise by itself since it defines what services are available.

3. If the description of service areas includes the functions performed there, the written description can b e used to demonstrate the relationship of various service areas and could serve as a guide in planning which service areas should be spacially related.

4. By tabulating observations by user categories, user patterns can be defined. Such a survey can show how the library is used by various hospital personnel.

5. More detailed analysis can show the amount of time spent in the library for each use pattern and how many locations were visited in the library for each pattern. This type of analysis can also be done for all observations. What results could be obtained are uncertain from this testing because the number of observations were too small to make generalizations.

6. The data collection from the two test libraries clearly show that there are differences through the way the two libraries are used.

7. The data also showed certain patterns of library use that were quite similar in both libraries studied. It is not proposed here that these patterns would hold true in all hospital libraries. However, general or expected use patterns could be defined; using the observational method discussed here, it could be determined if the library is in fact used in the anticipated way.

8. This method shows that the libraries are used differently by different categories of hospital personnel. Examining the data in detail would be an aid in planning library facilities and services for these people.

9. The method as described only demonstrates use of library facilities by health professionals and their assistants. The same method could be used to study how the library staff use the library facilities.

10. The census, definition of service areas, and survey of library users should take at most about one man week; much of it could be done by non-professional staff. Data evaluation requires more time but, following the user pattern approach, 4-6 hours should be sufficient to organize 100 survey samples into categories, user patterns, and a rough estimate of locations visited and time involved.

The importance of the hospital medical library to patient care is increasing. Little has been done to study how such libraries function in patient care and in meeting the unique educational demands of health science personnel. This study demonstrates that the functions of the hospital medical library can be an object of study.

ACKNOWLEDGMENT

This study was made possible by the generous cooperation and assistance of Mrs. Barbara Coe Johnson, librarian at Harper Hospital and Mrs. Anthos Hungerford, librarian at Hurley Hospital. Thanks is also due Dr. Vern Pings, medical librarian at Wayne State University, for his ingenuity, guidance, and encouragement.

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